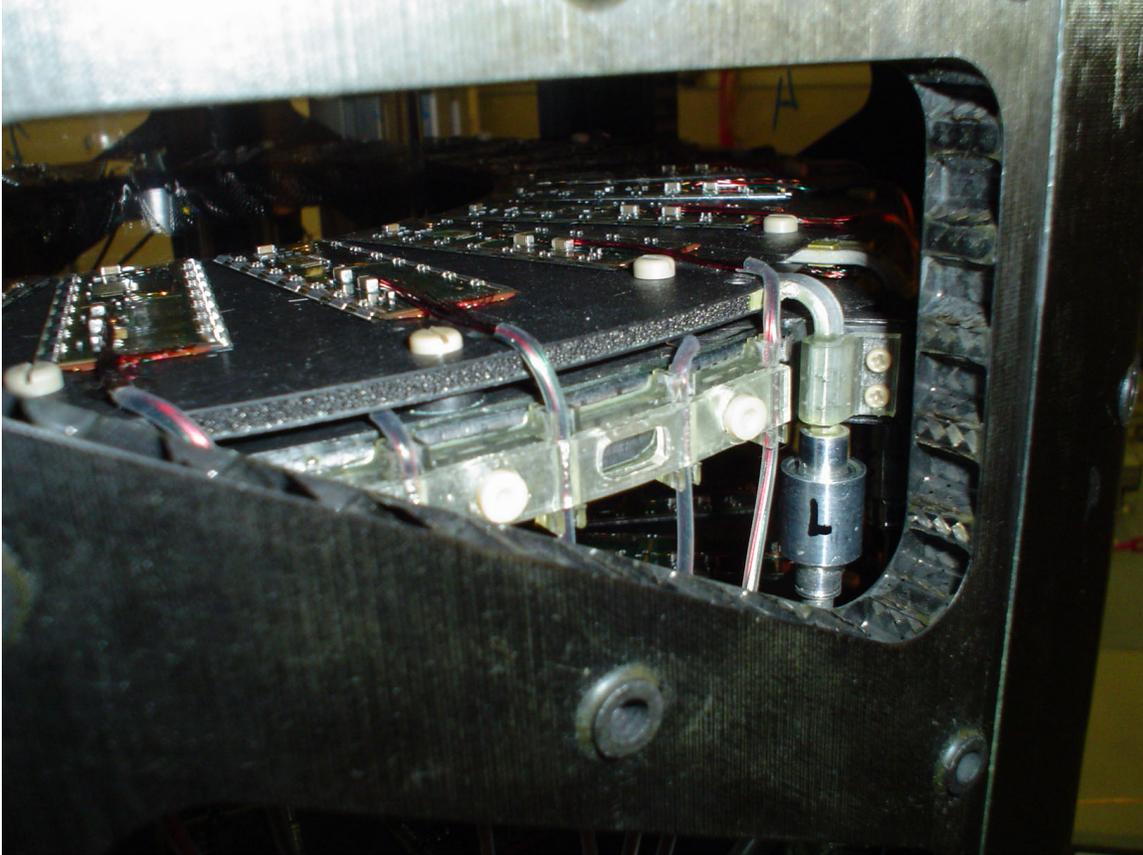


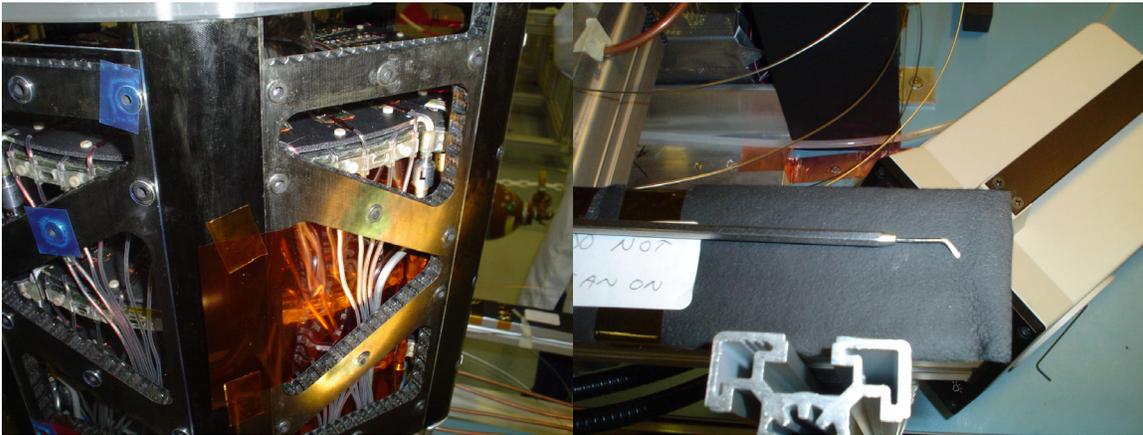
## Endcap A Repair Log

November 14, 2006

Try to setup to see if we can fix four fittings on endcap A. One with apparent largest leak is shown below



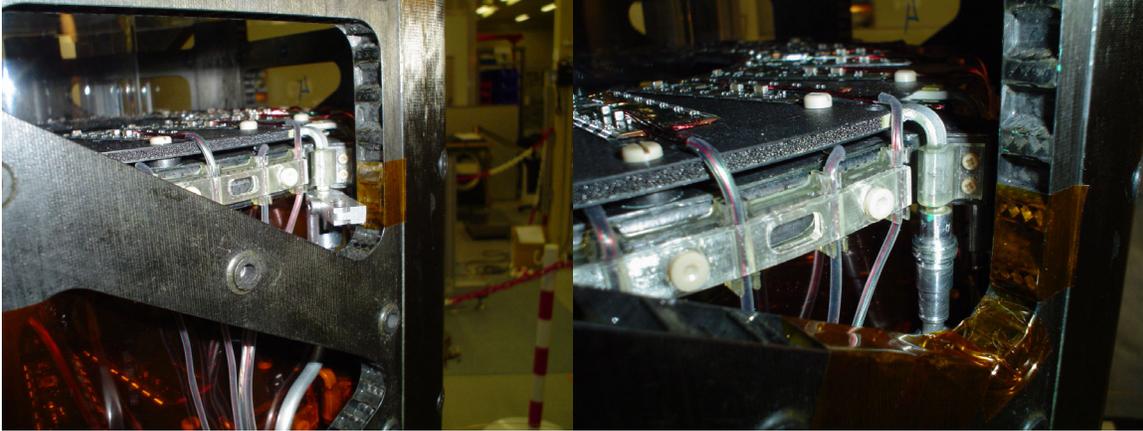
Kapton “debris guards added – see below. Tool for removing 5-minute epoxy



Glue easily removed with tool above. Glue fragment picked off with tweezers. Tried to rotate nut with fingers. It's tight! It seems to be torqued since we cannot untighten with two-finger, finger rotation. Decide to re-leak check.

Leak check of exhaust region shows large leak. Baseline is high 8-scale and leak if large. Cannot tell if leak is at fitting or at weld/backfilled glue of sector pipe. Tried leak checking at capillary with baseline around  $1e-7$ . No evidence of leak but hard to see small leak on this scale..

We bubbled with 1bar overpressure with alcohol. Easy to see bubbles at fitting. Spent a few hours trying to figure out how to rotate nut. Finally attached round regular clamp to sector tube side and used hemostat to grab nut and rotate by hand. Took multiple tries.



Removed clamp. Lowered nut. Compressed with tool. Still leaks. Pressure again and look at bubbles. Tried tool multiple times. Moves bubbles around but still leaks.

Maurice gets his brass tool into space. Alas no picture of this. Tighten. Cannot see bubbles. Leak check. Good on mid-10 scale!! Checked other three fittings. Also good!

Clean threads and nuts. Greased. Torqued with forceps very roughly 5% of full turn. Can't loosen with two-finger pressure.

Pressurize to 4 bar abs and leak check. All tight to mid-10-scale!!!